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cury, were found to have no direct effect whatever upon the quantity of blood sent out from the left ventricle at each systole. Since the pulse rate is not altered, the work done by the left ventricle varies directly as the arterial pressure against which it works, within the limits named. For how much wider limits than those given this may hold true was not determined. There is every reason to believe that under normal conditions the force of the systole is more than sufficient to completely empty the ventricular cavity, and since, with arterial pressures from 58 to 147 millims., the quantity of blood ejected at each systole remains constant, it seems probable that within these limits, at least, the force of the ventricular contraction is not influenced by variations in arterial pressure, but remains maximal throughout.

Variations of venous pressure on the right side of the heart influence in a marked manner the outflow from the left ventricle. As the general result of the experiments it was found that the outflow from the left ventricle, and consequently the work done by it, increases with the venous pressure, but not proportionally, up to the point of maximum work.

Variations in the rate of beat of the heart were obtained by heating or cooling the blood supplied to it. The general result may be stated as follows: A diminution of pulse-rate, brought about by lowering the temperature of the blood flowing into the heart, causes an increase in the quantity of blood thrown out from the ventricle at each systole, and consequently an increase in the work done at each systole, and *vice versa*. The changes in the outflow from the ventricle at each systole are not, however, inversely proportional to the changes in the pulse-rate. The total outflow, and, therefore, the total work done during any given period of time, decreases with a diminished pulse-rate, and increases with an increased pulse-rate.—*Johns Hopkins Univ. Circ., November, 1883.*

PSYCHOLOGY.

INTELLIGENCE IN A POINTER.—Don was a pointer dog, of large experience, that I shot with over forty years ago. At that time the pinnated grouse were abundant in our wild prairies. The birds were more frequently found in particular localities in different parts of the day. They affected the low grounds or swales, where the grass was long, in the heat of the day, and in the morning and evening they resorted to the high, rolling prairie. In a cool, cloudy day they were likely to remain on the high grounds. Don had learned this as well as his master, and when taken into the field it was interesting to observe the dog, when on the prairie, deliberately surveying the ground and then start out and range over the same ground his master would have selected.

This was the result of education and observation, and was not peculiar to Don. I have known many old bird dogs do the same.

But there was one thing which Don had not been taught in training, but which he had adopted of his own notion, as the result of his own reasoning or reflective powers.

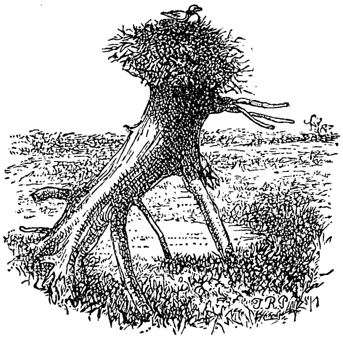
When a young bird gets separated from its companions, or it may be is the last of a covey which has escaped the fowling-piece, it is apt to wander a good deal, and the dog may follow its trail for a considerable distance. When pressed it will seek short cover if convenient, and there the trail is freqently lost. In such cases I have frequently seen Don hunt about rapidly and irregularly for a short time, and if still unsuccessful he would return to the last point where he could detect the scent, and then commence to hunt in a circle, enlarging the circle by perhaps two feet in the radius, and these were made with wonderful regularity till he had covered the ground for many rods around, if the want of success required it, but he generally found the bird within ten or twelve feet of the starting-point. I once knew him to go over the ground a second time in the same way before he was successful.

Invariably the bird was found to have concealed itself in a deep narrow depression in the prairie.

I repeat that the dog had not been taught, but had adopted it voluntarily, or, it was his own invention.

I never knew any other dog to do this, although a book could be filled with accounts of smart things which bird dogs have been known to do.—*J. D. Caton.*

A Labor-Saving Fish-Hawk.—Audubon, in his Birds of America, remarks (Vol. I, p. 65, octavo edition), that "A most erroneous idea prevails among our fishermen and the farmers along our coasts, that the fish-hawk's nest is the best '*scare crow*' they can have in the vicinity of their houses or grounds, as these good people affirm no hawk will attempt to commit depredations on their poultry so long as the fish-hawk remains in the country." Whether this is true or not is of little consequence. We all know, however, that they generally build by choice in human vicinity, and never conceal their nests from our view; differing in this respect from most other birds, including some that are domesticated. From Sandy Hook to Cape May is the favorite summer residence of the fish-hawks (*Pandion haliaetus*), there many of their nests may be seen in a single view along the sea coast.



About fifteen miles north of Cape May, N. J., Silver island, better known as the seven mile beach, appears to be a favorite spot in the breeding season; there, the writer of this article has photographed seven of their nests. All are built on the tops of trees of various altitudes, with one exception, one being built on the roots. The tree is, however, turned upside down, as represented in our sketch as a picturesque object. The founders of that family residence selected the roots of the tree uplifted and forming a basin-like solid foundation, conveniently shaped to save labor in collecting sticks, of which the superstructure is formed, slight additions being sufficient for the cradle of ten generations of young hawks which I have known.

That lone and venerable cedar tree stands in a salt meadow, half a mile from the sea, with its roots high up in the air, while its branches are buried, and hold it to the earth, the effect of some terrible storm of wind or sea (perhaps both), no one knows when as far as I could learn. On the roots of this tree the fish-hawks have annually repaired the nest and raised their families. Now they have abandoned it.

It may not be out of place to remark here that the fish-hawks do not always select a dead tree on which to build, as is generally supposed, almost all their nests being seen on dead trees, but it is a fact that the trees selected almost certainly die, or the upper branches do, in a few years after being so occupied.—*T. R. Peale.*

THE PERMANENCE OF THE DOMESTIC INSTINCT IN THE CAT.[1]—That the common cat would return to its primitive feral state, if a company of them of both sexes were turned loose in a region where they could have no access to mankind, is probable, and perhaps certain. But that the domestic instinct has now become an integral characteristic of the species, is a matter that will hardly be questioned by any one. Still opportunities to test the real permanence of this instinct are not often presented. I had the good fortune, however, to meet with an interesting opportunity of this kind, during the prosecution of my field work for the U. S. Geological Survey, in the summer of 1883.

In the prosecution of that work I made the journey, together with my party of three other persons, in an open row-boat, from Fort Benton, Montana, to Bismarck, Dakota, a distance of more than 1000 miles; nearly 600 miles of that journey being through a region which has so few inhabitants that no post-offices were established there. The only white people in the region were a few buffalo hunters, and the woodman who supplied the few passing steamers with fuel, and even these persons were rarely seen upon our journey.

Upon making our camp one night, about 100 miles above Fort Peck, a good sized black-and-white male cat came to the boat, and, although shy at first, soon manifested gratification at meeting us. I at first supposed that he belonged to some settler, but upon examining the neighborhood, no trace of the recent presence there of white men could be detected. When we started upon our journey in the morning, we left the cat on shore, but he followed along the bank, mewing piteously to be taken on board. The boat was headed for the shore, and as soon as it touched the bank the cat jumped on board, evincing delight at being in our company. For the next 100 miles he was our companion, and we became very much attached to him. He was extremely neat and never soiled the boat in any respect while we had him. At times he would ask plainly, by such signs as he could command, to be set on shore; and then he would hurry back again for fear of being left. He was gratified with our attentions to him, and purred approvingly when we caressed him.

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[1] Read before the Biological Society of Washington, Nov. 16, 1883.

We would have gladly taken him to Washington with us, but as that was impracticable we decided to leave him at the first place which should seem to offer him a good home. Upon reaching Fort Peck, which is now only an Indian trading post, we found only one white man there, who was in charge of the store. To him we told the story of our cat and begged him to give the wanderer a home. He consented, and upon going to the boat he at once declared our cat to be one which he, in company with a party of buffalo hunters, had, the year before, taken to the place where we had found him. He said the cat was absent, probably on a hunt, when they broke their camp, and so Jerry, for that was the name we had given him, was left there, and had spent the year alone in the wilderness, hunting his own living.

Of course I cannot cannot say that Jerry had not associated with mankind in all that time, but the circumstances favor such a conclusion. If he had, after his abandonment, taken up with any settler, it seems hardly probable that he would have been so eager to join us. He seemed quite conscious that we would take him away from his haunt; and this shows that he had formed no attachment to either persons or locality there. The love of locality is doubtless more observable in the cat than the love of persons; while the reverse is true of the dog. Cats are never so demonstrative in their expression of attachment as dogs; and I suspect that the associations of human domesticity has much to do with the attachment to locality which cats manifest. It is true that Jerry was an unusually intelligent cat; and his case may be a somewhat exceptional one. But I cannot help thinking that there is yet much for us to learn of the psychology of this alleged well-known animal.—*C. A. White.*

NOTE.—Dr. Crichton Browne, Vols. I and II, "West Riding Asylum Reports," states that the greater size of the head in civilized races, unaccompanied by a proportionate increase in the pelvic diameters, is an influence operating to a great extent in the production of idiocy, imbecility and insanity.—*S. V. Clevenger.*